	Application No.	Applicant(s)
Notice of Allowability	09/910,153	MIZUNO ET AL.
	Examiner	Art Unit	
	Paul A Baker	2188	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *amendment filed 30 September 2004*.

2. ☒ The allowed claim(s) is/are *1 and 14-17*.

3. ☒ The drawings filed on *20 July 2001* are accepted by the Examiner.

4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All   b) ☐ Some*   c) ☐ None of the:

        1. ☒ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the

           International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of

        Paper No./Mail Date _____ .

    Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application (PTO-152)

6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes

and/or additions be unacceptable to applicant, an amendment may be filed as provided

by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be

submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview

with George Yee, Reg. No. 37,478 on 24 November 20004.

The application has been amended as follows:

Replace claim 1 with:

1. A computer system with a storage system having reconfigurable logical

volumes comprising:

a plurality of computers;

a storage system operatively coupled to said computers and comprising a

plurality of inner logical volumes and an LU controller to control said inner logical

volumes; and

a management console to communicate instructions to change a logical volume

configuration of said logical volumes,

said LU controller comprising an LUN map designating an association among an

outer LUN, one or more inner LUNs, and a computer ID, said outer LUN designating an

outer logical volume that can be accessed by one of said computers, each of said inner

LUNs designating one of said inner logical volumes whereby said outer logical volume

can be associated with one or more of said inner logical volumes, said computer ID

designating one of said computers,

said LU controller responsive to an instruction to change said logical volume

configuration by modifying said LUN map according to said instruction,

wherein prior to said LUN map being modified, a first outer LUN and a first

computer ID are associated with a first inner LUN,

wherein subsequent to said LUN map being modified, said first outer LUN and

first computer ID are associated with a second inner LUN different from said first inner

LUN,

wherein said instruction to change a logical volume configuration includes said

first inner LUN and a requested size,

wherein said LU controller is configured such that if a free storage area exists

which has a size that is larger than said requested size plus the size of said inner logical

volume designated by said first inner LUN, then said LU controller copies data stored in

said inner logical volume designated by said first inner LUN to said free storage area,

and rewrites said LUN map to correlate said free storage area with said first outer LUN,

with said first computer ID, and with said second inner LUN, said second inner LUN

being associated with said free storage area,

wherein said LU controller is further configured such that if said free storage area

does not exist in said storage system, then said LU controller rewrites said LUN map to

correlate said first outer LUN with said logical volume designated by said first inner LUN

and with any free storage area in said storage system.

Cancel claims 18 and 19.

The following is an examiner's statement of reasons for allowance:

In regards to claim 1, none of the prior art of record discloses a system comprised of inner and outer LUNs, wherein upon a change configuration instruction, a second inner LUN having a size greater than or equal to the sum of a first inner LUN and a requested size is found and the contents of the first inner LUN are copied to the second inner LUN, wherein the LUN map is modified so that the outer LUN containing said first inner LUN is associated with said second inner LUN, in combination with the other specified claim limitations.

In regards to claim 17, none of the prior art of record discloses a system comprised of inner and outer LUNs, wherein upon an instruction to change a logical volume configuration is received, a free storage area having a size greater than or equal to the sum of a first inner LUN and a requested size is found and the contents of the first inner LUN are copied to the free storage area, wherein the LUN map is modified so that the outer LUN containing said first inner LUN is associated with a second inner LUN, wherein said second inner LUN is associated with said free storage area, in combination with the other specified claim limitations.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A Baker whose telephone number is (571)272-4203. The examiner can normally be reached on M-F 10am-6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on (571)272-4210. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PB

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SUPERVISORY PATENT EXAMINEF